

PATENT SPECIFICATION

(11) 1 211 832

DRAWINGS ATTACHED

- 1 211 832**
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(54) ADJUSTMENT MECHANISM FOR RECLINING ARMCHAIR

- (71) We, HIMOLLA POLSTERMOBELWERK CARL HIERL G.m.b.H., a Company organised under the laws of Germany, of 8252 Taufkirchen/Vils, Germany, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—
- 5 The invention relates to an adjustment mechanism for reclining armchairs having an extensible leg-rest support, an actuating lever for the leg-rest support being connected at one end to the leg-rest support, and at the other end to a lever pivoted on the seat.
- 10 It is an object of the invention to provide such a mechanism which can be adjusted by the occupant without displacing the centre of gravity too much.
- 15 According to the invention, in adjustment mechanism, an actuating lever for the leg-rest has one end which engages the leg-rest support while its other end is connected to a push rod pivoted to the seat, the actuating lever being pivoted on one arm of a crank which is pivotally mounted in relation to a chair frame, while the other arm of the crank engages a rod the rearward end of which is pivotally mounted in relation to the chair-back, and to the frame through a rocking arm.
- 20 Therefore, when the chair-back is adjusted in relation to a seat supported on the chair frame, the pivot of the back and consequently the entire seat-chair back system is moved forwardly, i.e. into the frame, far enough for the centre of gravity not to be much displaced. Therefore, the back of the chair can be heavily loaded in the reclining position without showing much tendency to tilt.
- 25 It is advantageous for the rod which engages on the crank to be extended beyond the point of engagement on the crank (preferably upwardly), and for this extension to have a stop for the leg support mechanism. It may also be connected to the frame by a spring, which serves as a return spring
- 30 to restore the chair-back from the reclining position to the normal chair-back position. 50
- The invention may be carried into practice in various ways but one embodiment will be described by way of example with reference to the accompanying drawings, in which:
- 35 Figure 1 shows the chair in sitting position;
- 40 Figure 2 shows the semi-reclining position; and
- 45 Figure 3 shows the reclining position.
- A chair frame 1 connects the two sides 2 of an armchair to each other and supports the seat 3 and back 4 of the armchair through a lever adjustment gear or mechanism according to the invention. The lever adjustment gear is secured on the chair frame by means of a frame fitting 5. The seat 3 is disposed on fitting members 6 and 7, a leg support gear also being disposed on the fitting member 7. The chair-back is fixed to a fitting member 8 which is pivoted at 9 on the seat fitting member 6, the bottom end of the member 8 having an extension 10. On the front seat fitting 7 are leg-rest guide rods 11 and 12 which are connected to leg-rest guide rods 13 and 14 in a Nuremberg scissor arrangement. A leg support fitting 15 is used for attachment of a leg-rest 16. The cranked rear leg-rest guide rod 11 is pivoted on the front fitting 7 at 17. The bend in the rear leg-rest guide rod 11 is pivoted at 18 to one end of an actuating lever 19 whose central fulcrum 20 can pivot on a crank 21 pivoted at an intermediate point 35 on the frame fitting 5. Pivoted at the other end of the actuating lever 19 is a push or pull rod 22 whose rear end is pivotally mounted on the seat fitting 6. The lower rear end of the crank 21 is pivoted at 23 on a rod 24, the rear end 25 of which is pivoted to the extension 10 of the chair-back fitting member 8 and, through a rocking arm 26, to the frame fitting 5. At its front end, the rod 24 has an extension which is approximately parallel with the lower arm of the crank 21, 60
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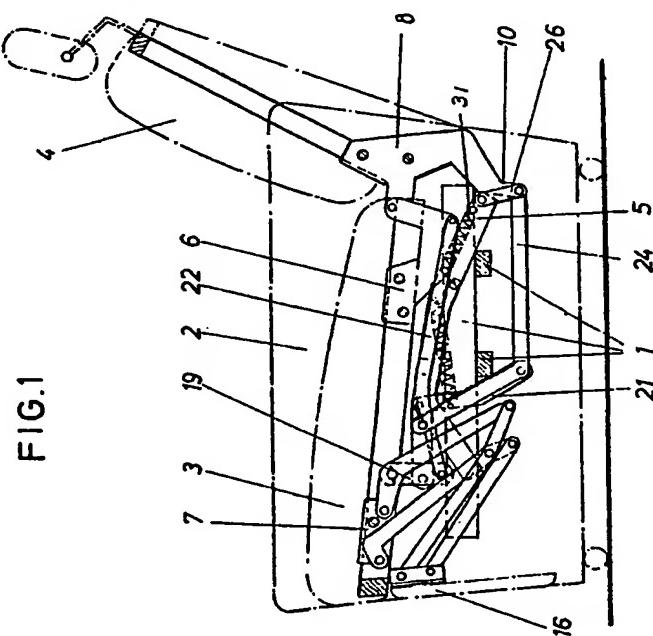
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- which extension is connected by a spring 28 to the frame fitting 5, and which carries a stop 27 for the leg-rest gear while the armchair is in the sitting position.
- 5 Upon adjustment from the sitting position into the semi-reclining position, pressure on the chair-back causes the seat to move rearwardly, this movement being transmitted through the rod 22 to the actuating lever 19 to cause the leg-rest to be extended without the chair seat having to be moved any great distance rearwardly. The distance by which the seat is moved rearwardly as the leg-rest is extended, is less than 4 cm, so that the centre of gravity displacement remains only insignificant during the first adjustment phase.
- The second adjustment phase, from the semi-reclining into the reclining position, is initiated by applying a loading to the chair-back. This moves the seat further rearwardly and transmits the movement through the rod 22 to the actuating lever 19. However, since the actuating lever 19 is in its extreme position, it cannot be pivoted any further. The rearwards movement of the chair seat must therefore necessarily produce a pivoting of the crank 21 about its pivot point in the frame fitting 5. On the one hand, this causes the front part of the seat to be raised by the front arm of the crank while on the other hand the bottom part of the crank 21 moves the rod 24 forwardly. The pivot point 25 of the rod 24 on the arm 26 and the continuation 10 of the chair-back fitting member 8 is likewise moved forwardly in relation to the frame, so that the rearwards movement brought about by the inclination of the chair-back is fully compensated. The 40 forwards movement of the rod 24 stretches the spring 28 so that, when the loading on the chair-back is removed, the spring 28 again pulls the rod 24 rearwardly and so returns the chair-back to the semi-reclining position.
- The pivoting movement of the crank 21 is limited by two stops 29 and 30 on the frame fitting 5. A tension spring 31 acts between the rod 22 and the frame fitting 5.
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- WHAT WE CLAIM IS:—**
1. Adjustment mechanism for reclining armchairs with an extensible leg-rest, in which an actuating lever for the leg-rest has one end which engages the leg-rest support while its other end is connected to a push rod pivoted to the seat, the actuating lever being pivoted on one arm of a crank which is pivotally mounted in relation to a chair, while the other arm of the crank engages a rod the rearward end of which is pivotally mounted in relation to the chair-back and to the frame through a rocking arm.
 2. A mechanism as claimed in Claim 1, in which the chair-back has an extension piece pivoted to the rod.
 3. Mechanism as claimed in Claim 1 or Claim 2, in which the chair-back is pivoted to a seat supported on the chair frame.
 4. Mechanism as claimed in any of the preceding claims in which the rod extends beyond its point of engagement with the crank, and carries on this extension a stop for the leg-rest support.
 5. Mechanism as claimed in Claim 4 in which the rod is connected to the frame by a spring.
 6. Adjustment mechanism for reclining arm chairs constructed and arranged substantially as herein specifically described with reference to the accompanying drawings.

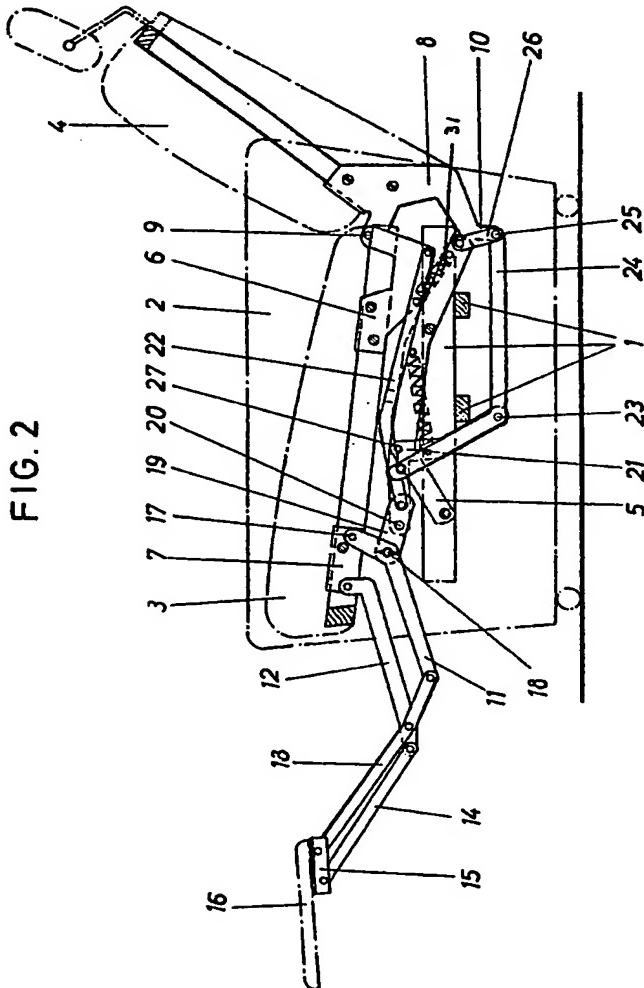
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